We claim:

1. A process for producing a polyvinyl alcohol gel comprising the following steps:

a) utilizing an aqueous polyvinyl alcohol solution with a degree of hydrolysis of at least 98 mol%.;

b) dissolving an additive in the aqueous polyvinyl alcohol solution;

c) dehydrating the aqueous solution to a maximum residual water content up to 50 wt.% in order to cause the phases to separate and the polyvinyl alcohol to gel with the additive forming a separate, distributed and aqueous phase; and

d) rehydrating the polyvinyl alcohol in an aqueous medium.

2. The process according to Claim 1, wherein the polyvinyl alcohol solution has a concentration of 4 - 30 wt.%.

3. The process according to Claim 1, wherein the polyvinyl alcohol solution has a concentration of 6 - 16 wt.%.

4. The process according to Claim 1, wherein the additive is used which has an affinity to water at least similar to that of the polyvinyl alcohol or greater.

5. The process according to Claim 4, wherein the additive is selected from the group cellulose esters, cellulose ethers, starch esters, starch ethers, polyalkylene glycol ethers, polyalkylene glycols, long-chain alkanoles ($n \geq 8$), sugar esters and sugar ethers.

6. The process according to Claim 1, wherein the additive includes polyethylene glycol.

7. The process according to Claim 6, wherein the additive has a concentration in a range of 4 - 20 wt.%.

8. The process according to Claim 6, wherein the additive has a concentration in a range of 6 - 10 wt.%.

9. The process according to Claim 1, wherein the dehydration of the aqueous solution is performed until a residual water content of at least 10 wt.% is reached.

10. The process according to Claim 1, wherein the dehydration of the aqueous solution is performed until a residual water content in a range of 10 - 30 wt.% is reached.

11. The process according to Claim 1, wherein the dehydrating of the aqueous solution is performed after dripping the aqueous solution onto a hard surface.

12. The process according to Claim 1, wherein the dehydrating of the aqueous solution is performed after pouring the aqueous solution into a form.

13. The process according to Claim 1, wherein the gel substance is formed with a diameter that is at least double a height of the gel substance.

14. The process according to Claim 1, wherein the gel substance is formed with a diameter of at least 1 mm and a height in a range between 0.1 and 1 mm.

15. The process according to Claim 1, wherein the gel substance is formed with a diameter in a range of between 2 mm and 4 mm and a height in a range between 0.2 mm and 0.4 mm.

16. The process according to Claim 1, wherein the dehydrating of the aqueous solution is performed after pouring the aqueous solution to form a long strand.

17. The process according to Claim 1, wherein the dehydrating of the aqueous solution is performed after pouring the aqueous solution onto a base material.

18. The process according to Claim 1, wherein the rehydrating the polyvinyl alcohol is performed in water.

19. The process according to Claim 1, wherein the rehydrating the polyvinyl alcohol is performed in a saline solution.

SMW B3 20. The process according to Claim 1, further includes adding a biologically, chemically or physically active material.

21. The process according to Claim 20, wherein a culture solution for the biologically active material is used as the saline solution.

22. The process according to Claim 21, wherein said culture solution contains polyvalent anions.

23. The process according to Claim 1, wherein additives, which alter specific gravity are added to the solution prior to dehydration.

24. The process according to Claim 1, wherein the dehydrating the aqueous solution is completely performed during a falling process in a drop tower and occurs during the time it takes a created a drop to fall in the drop tower.

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